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Remarks

The claims have been amended to provide further clarification. New claim 29 has been added to provide adequate coverage for Applicants' contribution to the art. The amendments are clearly supported by the original disclosure, particularly at original paragraph [79], and the original Figures. The allowance of claims 26 – 28 is gratefully acknowledged.

Reconsideration of the present application in view of the foregoing amendments and the following remarks is respectfully requested.

The present invention provides an apparatus and method which can accumulate different types of individual articles. Generally stated, the apparatus includes a delivery device which provides an initial-plurality of an initial-type of individual articles, and at least a first-accumulator mechanism which is automated to provide a first-plurality of a first-type of individual articles. The first-type of articles differ from the initial-type of articles, and the first accumulator mechanism includes a first metering drum. At least a first-transport-device moves the first-plurality of articles to a first packing location; and an automated assembly mechanism is configured to operatively combine the first-plurality of articles with the initial-plurality of articles. In a method aspect, a method for accumulating different types of individual articles includes delivering an initial-plurality of an initial-type of individual articles, and automating a first-accumulator to provide a first-plurality of a first-type of individual articles. The first-type of articles differs from the initial-type of articles, and the automating of the first-accumulator includes delivering the first-type of individual articles with a rotatable metering drum. The first-plurality of articles are moved to a first packing location and operatively combined with the initial-plurality of articles by employing an automated assembly mechanism. In particular aspects, the metering drum is tilted to move the articles downstream through the metering drum from an entry end to an exit end; and the first-accumulator includes a stationary plate member located operatively adjacent the exit end of the first metering drum, and positioned relatively downstream from the metering drum to help prevent articles from falling out from the bottom-side of the drum while allowing the drum to rotate past the stationary plate. Further aspects of the invention are set forth in the specification and claims.

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Claims 1-3, 7, 8, 11-13, 17, 20, and 22-25 have been alleged to be unpatentable under 35 U.S.C. § 103(a) over U.S. Patent 6,658,813 to Clay (Clay) in view of U.S. Patent 5,353,914 to Stephen et al. (Stephen) and in further view of U.S. Reissue 37,405 to Shirodera (Shirodera). This rejection is respectfully traversed to the extent that it may apply to the currently presented claims.

Clay discloses combined packages including a plurality of complementary containers. A first such container is a first generally rectanguloidal container that contains a first item and a second such container is a second generally rectanguloidal container that contains a second item that is different from and complementary to the first item. A packaging material at least partially surrounds each of the containers, thus holding the container in mutual abutment. A combined package can also include an adhesive between the containers that holds a face of the first container and a face of the second container in mutual abutment. To facilitate palletizing the combined packages, the overall shape of the combined package can be generally rectanguloidal. The first container can have a plurality of faces, each of which is generally coplanar with a respective face of the second container. Apparatus and methods for manufacturing such combined packages are also disclosed.

Clay, however, does not disclose or suggest an arrangement which includes a rotary drum having the configurations called for by the claimed invention. Recognizing the deficiencies of Clay, the Examiner has relied upon a combination of Clay with Stephen and Shirodera.

Stephen discloses a method of orienting plastic pipe fittings in predetermined positions by passing the fittings downwardly through an inclined, rotating tube having a relatively smooth-walled bore so that the frictional agitation of the gravitating articles permits them to settle into a predetermined position with the center of mass in the lowermost possible position. The rate of rotation and the angle of incline are adjusted for different articles, and tubes of three different sizes are provided for interchangeable use. Two pairs of supporting rollers on opposite sides of the tube position are engageable with axially spaced annular collars on the tubes, the collars being sized to hold the tubes at the same discharge level and one of the rollers of each pair being driven by a variable speed motor to rotate the tube.

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Stephen, however, does not disclose or suggest a configuration wherein the metering drum is tilted to move the articles downstream through the metering drum from an entry end to an exit end; and the first-accumulator includes a stationary plate member located operatively adjacent the exit end of the first metering drum, and positioned relatively downstream from the metering drum to help prevent articles from falling out from the bottom-side of the drum while allowing the drum to rotate past the stationary plate. Stephen also does not teach a configuration wherein another separately provided, stationary plate member has been located upstream of the entry end of the metering drum, and positioned operatively adjacent the entry end of the drum, to thereby partially block an entry end opening of the metering drum and hold the articles in the metering drum while allowing the metering drum to rotate past the stationary plate that is located upstream of the metering drum (e.g. as called for by claim 29).

In view of the deficiencies of Clay and Stephen, the Examiner has relied on a further combination with Shirodera.

Shirodera discloses a parts feeder for conveying a succession of parts in a common posture, includes: a rotary drum rotatable about its substantially horizontal axis of rotation and having on its inner circumferential wall surface a plurality of radial plates circumferentially spaced at predetermined distances; a chute in the form of an elongated plate substantially horizontally extending from an inside to an outside of the rotary drum through an outlet and having a guide portion along its upper edge; a vibrator supporting the chute for vibrating the chute longitudinally; a remover disposed adjacent to the guide portion for removing any of the parts if it is abnormal in posture while being conveyed on the guide portion of the chute; and the guide portion having a parts-supporting cross-sectional shape gradually varying from an inner end of the chute outwardly toward the outlet of the rotary drum.

A proper combination of Clay, Stephen and Shirodera, however, does not disclose or suggest an apparatus or method in which a first accumulator mechanism includes a rotatable metering drum with the configurations called for by Applicants' currently

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presented claims. To the contrary, Shirodera at Col. 3, lines 36-52 states

The rotary drum 10 is in the form of a cylinder having at one end a bottom plate 11 and at the other end a ring-shape inner flange 12. The rotary drum 10 has on its inside wall a plurality of plates 13 extending radially toward and parallel to its axis of rotation and spaced circumferentially from one another at a predetermined angular distance. Each of the radial plates 13 is a rectangular plate having a pair of opposite short sides, one of which is fixed to the bottom plate 11 and the other left free. The rotary drum 10 is rotatably arranged so as to be inclined by a predetermined angle with respect to the horizontal in such a manner that the side of the bottom plate 11 is at a lower side and the side of the inner flange 12 is at an upper side. With the rotary drum 10 thus inclined, the locking members 2 inside the rotary drum 10 come together to the side of the bottom plate 11 by themselves so that an adequate quantity of the locking members 2 to be fed can be secured by the individual radial plate 13. (emphasis added)

Thus, Shirodera teaches that the bottom plate 11 and inner flange 12 are part of the rotary drum 10, and that the bottom plate and flange rotate with the drum. Additionally, the drum taught by Shirodera is tilted to move the locking members 2 away from the upper exit of the drum, and has its radial plates 13 spaced away from the exit end of the drum.

Thus, the arrangements taught by Shirodera significantly differ from the arrangements taught by Stephen, and the different arrangements effectively contradict each other. Accordingly, when the disclosures of Shirodera and Stephen are taken as a whole, a person of ordinary skill would receive no suggestion or motivation to make the changes and modifications needed to synthesize the configurations called for by Applicants' presented claims.

Even if one assumes for the sake of argument that a person of ordinary skill would for some reason combine the teachings of Stephen with the teachings of Shirodera, a proper combination of Stephen and Shirodera would at most suggest taking the drum with the closed bottom taught by Shirodera and rotating the drum with the drive mechanism taught by Stephen. Such a combination would, however, fail to provide the configurations called for by the claimed invention.

Alternatively, a proper combination of Stephen and Shirodera might suggest taking the drum taught by Stephen and adding the flange member taught by Shirodera such that the flange member is affixed to the Stephen's drum and rotates with the drum cylinder. Such a

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combination would, however, effectively degrade the operation of the Stephen's drum and would still fail to provide the configurations called for by the claimed invention.

Accordingly, the arrangements taught by a proper combination of Clay, Stephen and Shirodera do not disclose or suggest a configuration wherein the metering drum is tilted to move the articles downstream through the metering drum from an entry end and out of an oppositely located exit end, and wherein the first-accumulator includes a stationary plate member located operatively adjacent the exit end of the metering drum, and positioned relatively downstream from the metering drum to partially block the exit end and help prevent articles from falling out from the bottom-side of the drum, while allowing the drum to rotate past the stationary plate; as called for by Applicants' presented claims.

Additionally, a proper combination of Clay, Stephen and Shirodera do not disclose or suggest a configuration wherein another separately provided, stationary plate member has been located upstream of the entry end of the metering drum, and positioned operatively adjacent the entry end of the drum, to thereby partially block an entry end opening of the metering drum and hold the articles in the metering drum while allowing the metering drum to rotate past the stationary plate that is located upstream of the metering drum (e.g. as called for by claim 29). As a result, the arrangements taught by a proper combination of Clay, Stephen and Shirodera remain less able to provide a desired control of the flow of articles.

A proper combination of Clay, Stephen and Shirodera also fails to teach an arrangement having at least one lug member at the exit end of the metering drum in the configurations called for by particular claims of Applicants. As a result, the arrangements taught by Clay, Stephen and Shirodera would be less able to provide a desired throughput capability and would be more susceptible to excessive clogging.

Thus, only through impermissible hindsight and an impermissible use of Applicants' own disclosure as an instruction manual or "template" to pick and choose from a myriad of disparate components would the claimed invention become apparent to the person of ordinary skill. It is, therefore, readily apparent that none of Clay, Stephen, Shirodera or any proper combination thereof would disclose or suggest the invention called for by Applicants' currently presented claims.

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Accordingly, reconsideration and withdrawal of the rejections under 35 U.S.C. § 103 are respectfully requested.

Claims 10 and 19 have been alleged to be unpatentable under 35 U.S.C. § 103(a) over U.S. Patent 6,658,813 to Clay (Clay), U.S. Patent 5,353,914 to Stephen et al. (Stephen), and U.S. Reissue 37,405 to Shirodera (Shirodera), in further view of U.S. Patent 2,656,085 to Schmied (Schmied). This rejection is respectfully traversed to the extent that it may apply to the currently presented claims.

Schmied discloses mechanisms for feeding articles one at a time in a predetermined position from a jumbled supply of such articles. The mechanism 10 comprises a circular hopper 13 into which a supply of the caps is adapted to be dumped. The hopper 18 is set at an angle, and the top 14, bottom 15 and sides 16 of the hopper are preferably closed and of double-walled insulated construction, to minimize the noise caused by the caps in being tumbled against each other within the hopper. A suitable door 17 is provided in the top 14 for use in loading the hopper with the caps. Immediately above the inclined bottom 15 of the hopper is mounted a similarly inclined disk 18, which disk is preferably of somewhat conical shape. The disk 18 is of substantially the same diameter as the hopper and is mounted on a short shaft 19 which is rotated from a motor 29 through suitable reduction gearing 21. The disk 18 is adapted to be rotated by the motor 20 in the direction indicated by the curved arrow in Fig. 4.

The arrangements taught by Schmied, however, significantly differ from the arrangements taught by Stephen, and the different arrangements of Schmied effectively contradict the arrangements of Stephen. Accordingly, when the entire disclosures of Schmied, Shirodera, Stephen and Clay are taken as a whole, a person of ordinary skill would receive no suggestion or motivation to make the changes and modifications needed to synthesize the configurations called for by Applicants' presented claims. Only through impermissible hindsight and an impermissible use of Applicants' own disclosure as an instruction manual or "template" to pick and choose from a myriad of disparate components would the claimed invention become apparent to the person of ordinary skill.

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It is, therefore, readily apparent that Schmied fails to overcome the deficiencies of Clay, Stephen and Shirodera. As a result, a proper combination of the cited references would still fail to teach the invention called for by Applicants' currently presented claims.

Accordingly, reconsideration and withdrawal of the rejections under 35 U.S.C. § 103 are respectfully requested.

The Examiner has withdrawn dependent claims 4-6 and 14-16 from consideration. In view of the amendments, however, it is submitted that these claims are also in form for allowance.

For the reasons stated above, it is respectfully submitted that all of the currently presented claims are in form for allowance. Accordingly, reconsideration and withdrawal of the rejections, and allowance of the currently presented claims are earnestly solicited.

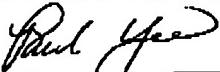
Please charge any prosecutorial fees which are due to Kimberly-Clark Worldwide, Inc. deposit account number 11-0875.

The undersigned may be reached at: 920-721-2435.

Respectfully submitted,

STEVEN A. HELLMANN, ET AL.

By


Paul Yee
Registration No.: 29,460
Attorney for Applicants

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